



**UNITED STATES DEPARTMENT OF COMMERCE**  
**Patent and Trademark Office**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/768,174 01/24/01 MOTOOKA

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023850 MMC2/1108  
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EXAMINER

MITCHELL, J

ART UNIT

PAPER NUMBER

2822

DATE MAILED:

11/08/01

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

Application No.

09/768,174

Applicant(s)

MOTOOKA ET AL.

Examiner

James Mitchell

Art Unit

2822

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on 24 January 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☐ Claim(s) 11-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 11-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. This office action is in response to the application filed January 24, 2001.

#### ***Specification***

2. The disclosure is objected to because of the following informalities: Inconsistent use of terms throughout the application. Applicant identifies items 8a and 8b as pads (Page 6, Lines 31-32) and then later refers to them as electrodes (Page 8, Lines 4-5). Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

4. Claims 11-13, 15-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Heo et. al. (U.S. 5,858,815).
5. Heo discloses a chip (11) having a top surface and a first electrode (12) with a polyimide resin (Lines 11-12, Column 5) circuit substrate (20) and a conductor pattern (26) including a second electrode (via the pad region of said pattern that is connected to a bond wire) formed thereon attached to the top of said chip, an adhesive resin (30) intervening between a top surface of said chip and said substrate, a spherical electrode (Fig. 11a, Item 24) on said substrate in correspondence to a third electrode, a bonding wire ( Fig. 4b, Item 40) electrically interconnecting said second electrode on said

Art Unit: 2822

conductor pattern and said first electrode on said chip, a potting (50) resin (Lines 19-22, Column 5) of the same material as the adhesive wherein said resin encapsulates said wire and said first and second electrode, the chip and potting defined by a common edge surface substantially perpendicular to a principal surface of said substrate with the resin potting including a sidewall portion that covers a sidewall of said circuit substrate (see Fig.6B).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heo as applied to claim 11 and further in view of Nakamura (U.S. 5,729,051).

8. Heo does not show a circuit substrate comprising a glass epoxy, however Nakamura utilizes a glass epoxy circuit substrate (Fig.1).

9. It would have been obvious to one of ordinary skill in the art to form the circuit substrate of Heo with a glass epoxy, since the use of glass epoxy for a substrate is conventional in the manufacture of a Ball Grid Array (BGA) as taught by Nakamura (Lines 50-53, Column 1).

***Conclusion***

Art Unit: 2822

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Lee et. al. (U.S 6,013,946), Razon et. al. (U.S 5,950,070), and Khandros et. al. (U.S 5,148,265).

The prior art discloses in Lee the use of a resin potting over a resin or glass circuit substrate formed on top of a chip surface wherein a first electrode on said chip is connected to a second electrode via wire bonds, in Razon the use of a circuit substrate formed over the top of a chip surface, and in Khandros the use of an adhesive to bind a chip and circuit substrate.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Mitchell whose telephone number is (703) 305-0244. The examiner can normally be reached on M-F 10:30-8:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead Jr. can be reached on (703) 308-4940. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3432 for regular communications and (703) 305-3230 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

  
CARL WHITEHEAD, JR.  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800

Application/Control Number: 09/768,174

Art Unit: 2822

Page 5

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November 2, 2001

<b>INFORMATION DISCLOSURE CITATION PTO-1449</b>	Atty. Docket No. 980100A	Serial No.
	Applicant(s): MOTOOKA, et al.	
	Filing Date: February 11, 1998	Group Art Unit: 2822

### U.S. PATENT DOCUMENTS

Examiner Initial	Document No.	Name	Date	Class	Subclass	Filing Date (If appropriate)
JMM	AA	5,950,070	Razon et al.	5/97		
	AB	5,408,127	Mostafazadeh	3/94		
	AC	5,814,883	Sawai et al.	5/96		
	AD	5,858,815	Heo et al.	12/96		
	AE	3,855,693	Umbaugh	12/96		
	AF	5,148,265	Khandros, et al.	9/92		

### FOREIGN PATENT DOCUMENTS

Document No.	Date	Country	Translation (Yes or No)
AG			
AH			
AI			
AJ			
AK			

### OTHER DOCUMENTS

AL	
AM	
Examiner	Date Considered 10/30/01